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Editorial

Publication of the 150th volume of NIM-B during the past year signifies the strong foundation on which we enter the year 2000. Since its founding, the primary function of our journal has remained the dissemination of original research findings concerning beam interactions with atoms, molecules and their aggregates. As editors we strive to maintain high scientific standards, and to facilitate rapid and accurate publication of important research findings. After sixteen years, the futures of NIM-B and our research communities continue to offer both promises and challenges.

One of these challenges is to navigate through a continuously changing landscape, which this year includes the transfer of Ruud Koole's responsibilities as issue manager to Ms. Ineke Kolen. Ruud's steadiness and consistently high standards have helped us maintain the high journal quality, and we wish him the best in his new position. Further changes of course are scheduled to occur with our Editorial Advisory Board. Hence we are sorry to say farewell to K. Bethge (Frankfurt), K. Jones (Gainesville), F. Paszti (Budapest) and I. Yamada (Kyoto) after six years of dedicated service. At the same time we welcome three new members, J. Räisänen (Jyväskylä), C. Trautman (Darmstadt) and B. Doyle (Albuquerque).

Finally, this year we wish to address a problem of terminology that has engendered substantial confusion among our readership. Statements similar to the following "The targets were implanted to a dose of $10^{16}/cm^2$" occur in a substantial fraction of the manuscripts we receive. The colloquial meaning of this phrase is immediately clear to many veterans of the ion implantation/modification community, but the growing fraction of our readers from the biology, medicine and health physics areas are often left bewildered. According to the ICRU Report #60 "Fundamental Quantities and Units for Ionizing Radiation" (Latest edition: International Commission on Radiation Units and Measurements; Bethesda, MD, 30 December 1998), the (absorbed) dose is "the quotient of $d\bar{\varepsilon}$ by dm, where $d\bar{\varepsilon}$ is the mean energy imparted to matter of mass dm, thus $D=d\bar{\varepsilon}/dm$. Unit: J/kg. The special name for the unit of (absorbed) dose is Gray". This is something quite different from the colloquial use of the word *dose* quoted above; even the dimensions are different! The correct word to use in the above example is *fluence*, not dose. Quoting again from the same source as above, we find "The fluence, Φ, is the quotient of dN by da, where dN is the number of particles incident on a sphere of cross-sectional area da, thus $\Phi=dN/da$. Unit: m^{-2}." This definition is seen to fulfill our purposes nicely for a parallel beam incident perpendicular to the target surface.

For further information on all NIM-B matters, we suggest you visit our journal's website at http://www.elsevier.nl/locate/nimb

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